

Black Lives Matter protests and COVID-19 cases: relationship in two databases

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ABSTRACT

Background The coincidence of Black Lives Matter (BLM) protests with the COVID-19 pandemic in the USA has raised concerns about the safety of mass gatherings for political causes. This study examines two databases to probe any correlation between protests and increases of COVID-19 case rates afterward.

Methods A BLM protest aggregator and a county-level COVID-19 database were crosswalked, matching the city that the protest occurred in with the county and its case rates at 0, 1, 2 and 3 weeks after the index protest, and was compared with a control county in the same state with the nearest match of population size and case rate at Week 0.

Results In the 22 days after the killing of George Floyd, there were 326 counties participating in 868 protests, attended by an estimated 757 077 protestors. The median case rate at Week 3 was 0.0049 in protest counties versus 0.0041 in control counties, which was found to be statistically significant. Regression analysis found that each individual protestor contributed to the case rate by 7.65×10^{-9} , which was not statistically significant.

Conclusion Although the increase was statistically significant, it was very small in magnitude and likely due to limitations of significantly different population sizes in comparators.

Keywords communities, epidemiology, management and policy

Introduction

The surge of Black Lives Matter (BLM) protests in the wake of the killing of George Floyd amid the ongoing COVID-19 pandemic has generated discussion about the contribution of these protests to the spike in case rates.¹ Dave *et al.*² performed a very robust and multifactorial analysis early on after the protests and concluded no impact on COVID-19 rates. A contentious and important issue like this needs repeated analyses and varied data to support public health decisions going forward.

Methods

Two data aggregators, one for BLM protests,³ another for COVID-19 statistics,⁴ were crosswalked. Data collection methodologies are detailed on both websites. Numbers of protestors that were not estimated in numerical format (dozens, hundreds, hundreds–thousands, thousands) were imputed (48, 316, 1000, 3162, respectively). Two entries that were assumed to contain errors (Galax TX and Mobile

IL) were corrected to the only proper fits (Galax VA and Mobile AL). Three entries that were assumed to be errors but could not be rectified were removed (Great Falls MN, San Francisco FL and Laurel MA). Only BLM protests that were in the USA were considered, from Memorial Day (25 May 2020) until 16 June 2020. For each county a protest occurred, a control county from the same state was selected, by minimizing the scaled Euclidean distance of county population and COVID-19 case number at the date of the protest, exclusive of any county that also had a protest in the study period. For analysis, protests that happened in the same county on the same date were merged into one event with a summation of protestors. Differences in case rate (total cases per county/total population per county) were then analyzed by Wilcoxon–Mann–Whitney test at 1, 2 and 3 weeks after the protest date in protest and control counties. The number of protestors was regressed on case rates at 1, 2 and 3 weeks out by quantile regression.

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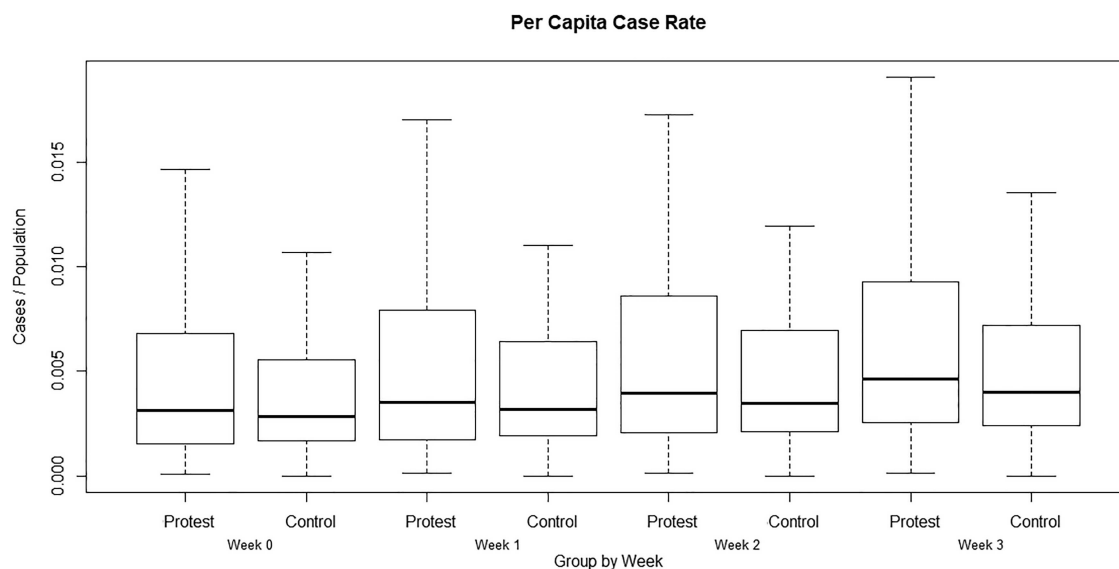


Fig. 1 Box and whisker plot for spreads of COVID-19 per capita case rate in protest versus control counties, Weeks 0–3.

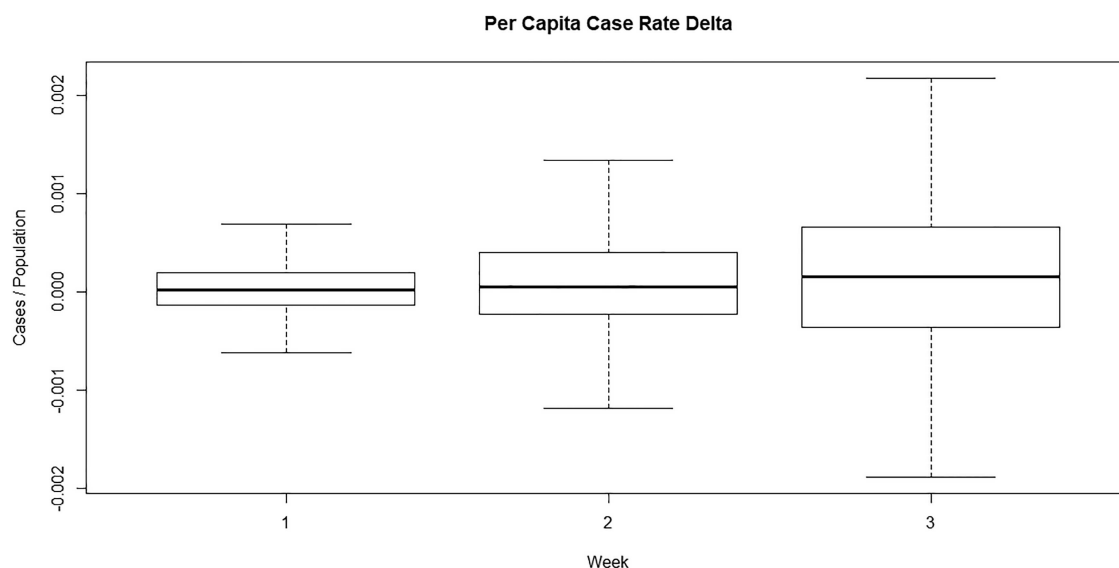


Fig. 2 Box and whisker plot of delta per capita case rate of COVID-19, Weeks 1–3.

Results

In the 22-day period, 326 counties participated in 868 demonstrations with an estimated 757 077 protestors. The protest counties had a median population of 571 327, versus 229 849 for control counties (interquartile [IQR] 180 333–1 153 526 versus 133 581–607 391). The median initial case rates were 0.0031 in protest counties versus 0.0029 in control counties (IQR 0.0016–0.0068 versus 0.0017–0.0056). [Figure 1](#) displays

case rates in Protest and Control counties at Weeks 0–3. The case rate delta at Week 1 was a median of 0.000014 (IQR -0.000136 to 0.000196 , $P = 0.02777$), at Week 2 0.000054 (IQR -0.000233 to 0.000405 , $P = 0.001009$) and at Week 3 0.000157 (IQR -0.000358 to 0.000661 , $P = 0.000002$). [Figure 2](#) displays the delta case rate, Weeks 1–3. At Weeks 1, 2 and 3, each protestor added to the case rate (at the median quantile) by 2.01×10^{-9} ($P = 0.88$), 4.87×10^{-9} ($P = 0.86$) and 7.65×10^{-9} ($P = 0.83$), respectively.

Discussion

This database analysis shows that each individual protestor did not significantly contribute to the COVID-19 case rate in affected counties. While the protests as whole had a small but statistically significant increase in the counties they took place in, as it was only a maximum of 1/20th the median initial case rate at Week 3, it can safely be considered ‘societally’ insignificant. Additionally, the model that matched control counties could only find significantly smaller counties to compare with. This is likely an artifact of BLM protests occurring at the overwhelming majority of metropolitan areas. As such, it is very likely that other factors intrinsic to the larger populations and infrastructure of the protest counties could account for the small increase in rates.

Conflicts of Interest

Both authors declare no significant conflicts of interest.

Author Contributions

GN conceived the study, collected the data, analyzed it and wrote the initial draft manuscript. WD edited and revised the manuscript.

References

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- 2 Dave D, Friedson A, Matsuzawa K, *et al*. Black Lives Matter Protests, social distancing, and COVID-19. *National Bureau of Economic Research Working Paper Series*. June 2020. doi:10.3386/w27408
- 3 *Read this list of 4,361 Black Lives Matter protests and other demonstrations/ Elephrame*. <https://elephrame.com/textbook/BLM> (6 July 2020, date last accessed).
- 4 Coronavirus Locations: *COVID-19 Map by County and State*. USAFacts. <https://usafacts.org/visualizations/coronavirus-covid-19-spread-map/> (16 July 2020, date last accessed).